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RAD

105300108

RADIONUCLIDE ANALYSIS REPORT

System ID No.: **IH3826**	System Name: **Seven Cedars Casino**	
Lab/Sample No: **142-57001**	Date Collected: **08/10/2011**	DOH Source No:
Multiple Source Nos:	Sample Type: **After Treatment**	Sample Purpose: **Compliance**
Date Received: **08/16/2011**	Date Reported: **09/28/2011**	Supervisor: **Steve Carlston, Branch Mgr**
	Date Analyzed: **See Below**	Analyst: **See Below**
County: **Clallam**	Group :	
Sample Location: **CA-02 Finished Tap**		
Send Report To: **Twiss Analytical, Inc.** NF **26276 Twelve Trees Lane, Suite C** **Poulsbo, WA 98370**	Bill To: **Twiss Analytical, Inc.** **26276 Twelve Trees Lane, Suite C** **Poulsbo, WA 98370**	

DOH #	ANALYTES	LAB MDA	RESULTS	UNITS	DATE ANALYZED	MCL	(ANALYST'S INITIALS) & METHOD USED
	EPA/STATE REGULATED (These analyses should be performed in order as listed)						
165	**Gross Alpha**		**3.7**	**pCi/L**	**09/21/2011**	**15**	**EP / E900.0**
166	**Radium 228**		**-0.3**	**pCi/L**	**09/21/2011**	**5**	**PLJ / RA-05**
	*Determine Radium 226 activity if Gross Alpha is greater than 5.0 pCi/L**						
39	Radium 226*			pCi/L		5	
	Determine Uranium activity if Gross Alpha is greater than 15.0 pCi/L **						
105	Uranium** (mass)			µg/L		30	
105	Uranium** (activity)			pCi/L		20**	
	Depending on the foregoing data determine the following (must be completed if data is available):						
40	Radium 226 + 228			pCi/L		5	
40	Gross Alpha*** + Radium 228			pCi/L		5	
41	Gross Alpha minus Uranium			pCi/L		15	
	Do the following only if specifically requested by the client or the state						
42	Gross Beta****			pCi/L		50	
43	Tritium****			pCi/L		20,000	
44	Strontium 90****			pCi/L		8	
107	Cesium 134****			pCi/L		***	
108	Iodine 131****			pCi/L		***	

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MCL (Maximum Contaminant Level): If the contaminant amount exceeds the MCL, immediately contact your regional DOH office.
MDA: Minimum Detectable Amount.
NA (Not Analyzed): use in the results column for compounds not included in the current analysis.
ND (Not Detected): use in the results column for compounds analyzed and not detected at a level greater than or equal to the MDA.
*** If Gross Alpha is less than , or equal to, 5 pCi/L**, it may be assumed that the Alpha activity is entirely due to Radium 226 (i.e., Radium 226 would not need to be run). The Alpha activity is then added to the Radium 228 activity (i.e., Beta activity) for MCL determinations. If the sum of the Alpha activity plus the Radium 228 activity is greater than 5 pCi/L, Radium 226 activity must then be determined for water system compliance purposes (i.e., Radium 226 + Radium 228 activity)
****Uranium's MCL is given in mass terms (µg/L).** When Uranium is determined by mass methods, it must be converted to activity levels (pCi/L) for calculation of the MCL (Gross Alpha less Uranium). A conversion factor of 0.67 pCi/l per µg/L should be used. Uranium needs to be determined only when the Gross Alpha exceeds 15 pCi/L.
*** Use Gross Alpha in lieu of Radium 226 when the Gross Alpha is less than, or equal to, 5.0 pCi/L
****** The MCL for beta particle and photon radioactivity from man-made radionuclides** is the average annual concentration which shall not produce an annual dose equivalent to the total body or any internal organ greater than four millirem/yr.
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